

SCIENCE

And Technology Program



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Steel structures will degrade with time due to corrosion. Protective coatings and/or cathodic protection have been historically employed to extend the useful service life of submerged and buried structures. A metallized coating combines these two effective methods into one system, which could effectively extend the useful service life of structures at a reduced cost.

In 1988, Reclamation applied a metallized coating to the spillway radial gates at Blue Mesa Dam. In 1989 and 1991, Reclamation applied a metallized coating to the radial gates of a check structure on the McCluskey Canal and to the upstream side of the spillway radial gates at Glen Canyon Dam, respectively. A top coat was applied to the metallized coating at each location. The above represents the initial use of metallized coatings on Reclamation structures. By evaluating the metallized coating on these structures, the performance of the metallized coating can be determined.

Cathodic protection is a traditional method of extending the useful service life of buried or submerged structures and is often retrofitted to existing structures. Cathodic protection of a coated structure typically requires that the coating system be compatible with cathodic protection. The compatibility of metallized coatings and external cathodic protection has not been investigated.

To determine: (1) performance of metallized coatings on Reclamation structures, and (2) compatibility of metallized coatings and external cathodic protection.

Reclamation's experience with metallized coatings, including a top coat, at first appears to be mixed. However, systematic analysis of the available information indicates Reclamation's experience has been positive and has highlighted areas where further attention should be focused. It is concluded that a top coated, zinc metallized coating is recommended for fresh water immersion. In addition, it is recommended that various top coat materials and application procedures be evaluated for use over a zinc metallized coating.

The following partners contributed during field evaluations of the metallized coatings: Garrison Diversion Conservancy District, Reclamation's Curecanti Field Division, Dakotas Area Office, and Glen Canyon Field Division.

A report titled, "Performance of Metallized Coatings on Three Reclamation Structures," will be finalized in the first quarter of FY 2000.